

**Amendment to the Claims:**

This listing of claims is intended to replace all prior listing of claims in the application.

1. (Currently amended) A device for processing a detector signal (*i*)  
~~derived from current supplied by~~ a particle detector, said device comprising:  
~~an integrator for measuring the total charge transported by an input signal~~  
~~feeding said integrator for a predetermined time interval, wherein said device~~  
~~further comprises~~

\_\_\_\_\_ a unit for reducing a fluctuating component of background noise present in said detector signal and for producing said input signal current and providing a treated detector current, comprising:

\_\_\_\_\_ a converter for associating an intermediate voltage signal with the detector current;

\_\_\_\_\_ a threshold trigger for allowing said intermediate voltage signal to pass when said intermediate voltage signal exceeds a first predetermined threshold value and for preventing said intermediate voltage signal from passing when said intermediate voltage signal falls below a second predetermined threshold value, said threshold trigger providing a treated voltage signal; and

\_\_\_\_\_ a converter for associating said treated detector current with said treated voltage signal; and

\_\_\_\_\_ an integrator for measuring the total charge transported by said treated detector current for a predetermined time interval.

2. (Cancelled)

3. (Currently amended) The device according to claim 21, wherein said converter for associating said intermediate voltage signal comprises an amplifier in parallel with a resistor.
4. (Currently amended) The device according to claim 21, wherein said threshold trigger comprises a comparator.
5. (Currently amended) The device according to claim 21, wherein said converter for associating said treated detector current comprises a resistor.
6. (Currently amended) A device for processing signals produced by A system comprising a set of particle detectors producing respective signals, wherein at least one of said signals is processed by means comprising and at least one of said devices according to claim 1 for processing at least one of said signals.
7. (Currently amended) The A system comprising a device according to claim 1, wherein the particle detector comprises a photon detector, wherein particles detected by said set of particle detectors photon detector comprise photons.
8. (Previously presented) A radiology apparatus comprising a device according to claim 1.
9. (Previously presented) An imaging apparatus comprising a device according to claim 1.
10. (Previously presented) A fluoroscopy apparatus comprising a device according to claim 1.
11. (New) The device according to claim 1, further comprising a unit for reducing a direct component of the background noise in said detector current,

comprising a capacitor connected to said particle detector and an input of the unit for reducing the fluctuating component.

12. (New) The device according to claim 1, wherein said integrator comprises an amplifier and a capacitor arranged in parallel.

13. (New) The device according to claim 7, wherein the particle detector comprises a CdZnTe material, the particle detector adapted to measure X-rays.

14. (New) A device for processing a detector signal derived from a particle detector comprising:

a unit for reducing a fluctuating component of background noise present in said detector signal and for producing an input signal, said unit comprising:

a converter for associating an output voltage with an input current of said detector signal;

a threshold trigger for allowing current to pass when said output voltage exceeds a first predetermined threshold value and for preventing current from passing when said output voltage falls below a second predetermined threshold value; and

a converter for associating the input signal with an output current of the threshold trigger; and

an integrator for measuring the total charge transported by the input signal feeding said integrator for a predetermined time interval.

15. (New) A method for processing a detector current signal derived from a particle detector, said method comprising:

sensing a detector current;

associating an intermediate voltage with a current derived from said detector current;

applying the intermediate voltage to a switch providing an output switch voltage, said switch allowing said intermediate voltage to pass when said intermediate voltage exceeds a first predetermined threshold value and preventing said intermediate voltage from passing when said intermediate voltage falls below a second predetermined threshold value;

associating a processed current with said output switch voltage;  
and

integrating the total charge transported by said processed current.

16. (New) The method of claim 15, further comprising processing said detector current through a capacitor prior to the step of associating an intermediate voltage.

17. (New) The method of claim 15, further comprising reinitializing the integration process at predetermined time intervals.

18. (New) The method of claim 15, wherein the particle detector is used to measure X-rays.

19. (New) The method of claim 15, wherein a stream of particles entering the particle detector is weak.